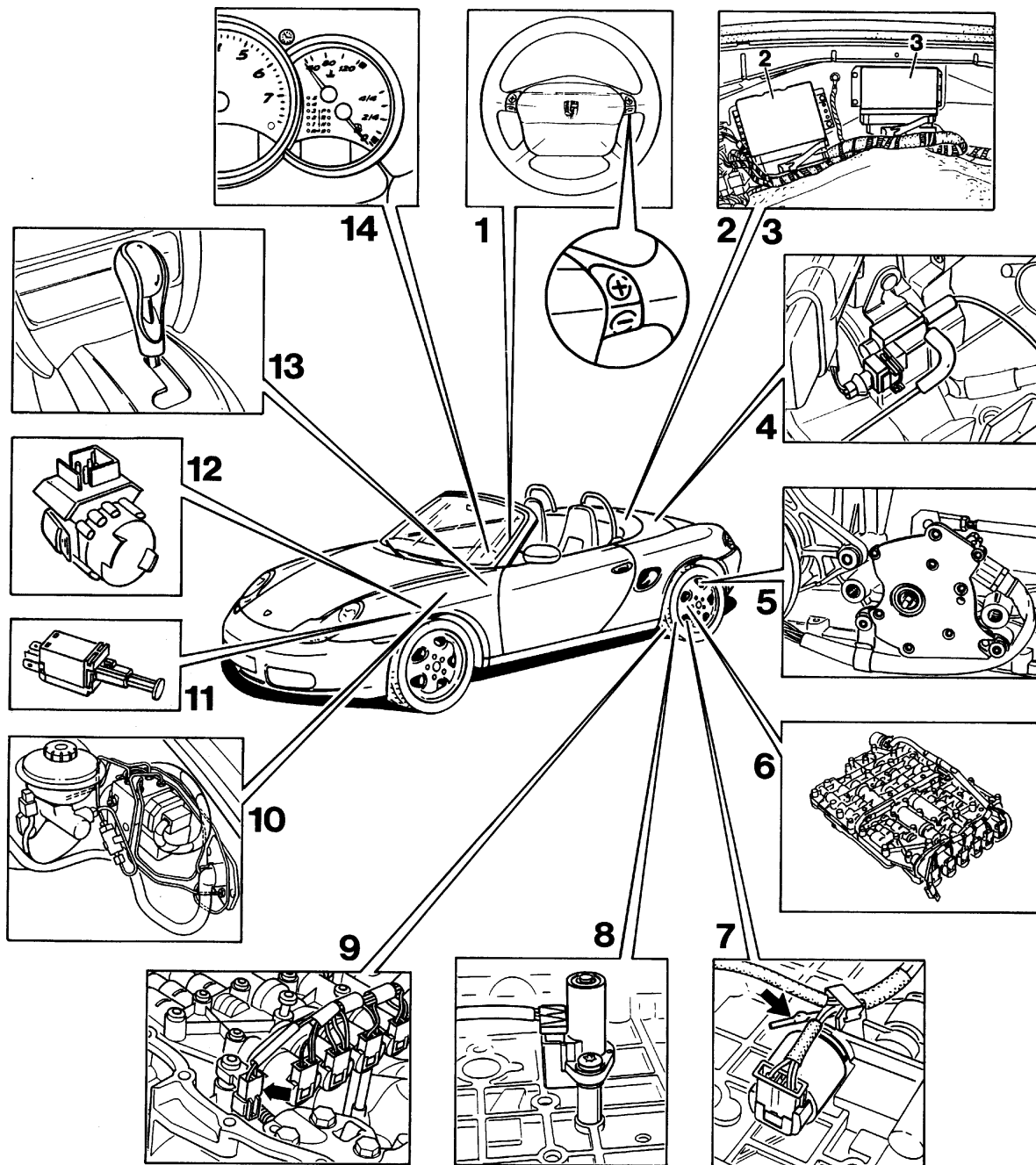


# **Diagnosis/troubleshooting**

**Tiptronic**

**System G 40**

# Component arrangement



# Function of individual components

## 1. Upshift and downshift switches

Installation position: In the steering wheel.

In the manual gate, they connect ground to the Tiptronic control module, which initiates upshifting or downshifting depending on the speed.

## 2. DME control module

Installation position: On the rear wall in the rear luggage compartment

The DME control module is connected with the Tiptronic control module. It transmits the following information via a control line (CAN bus):

Rpm

torque,

throttle position

engine temperature.

## 3. Tiptronic control module

Installation position: On the rear wall in the rear luggage compartment

The Tiptronic control module is the information and command centre of the entire system. From a large volume of incoming information (measured variables), which are compared with stored driving and shifting programs, the Tiptronic control module selects the characteristics suitable for the type of driving and sends commands to the transmission to shift or not to shift.

## 4. Coolant changeover valve

Installation position: On the engine (transport eye).

Depending on the ATF and coolant temperature, the changeover valve is activated by the Tiptronic control module and routes vacuum to the shutoff valve, which opens or closes the transmission coolant circuit.

## 5. Multi-function switch

Installation position: On the transmission

The multi-function switch is actuated directly by the selector lever via a cable and transfers the selector lever position to the transmission control module. It controls the reversing lights and disables the starter when a transmission range is selected.

The "reduced driving program" is activated if this signal is faulty.

## 6. Solenoid valves (SV)

Installation position: On the hydraulic control unit in the transmission

The electronic transmission controls the transmission functions via the SVs. SVs 1, 2 and 3 are On-Off valves. Their task is to switch over valves in the hydraulic system.

The SVs (pressure regulators 1 ... 4) are electronic pressure-control valves. They convert an electric current into a proportional hydraulic pressure, and actuate the valves of the shifting elements.

## 7. Sender for ATF temperature

**Installation position** The sender is integrated in the transmission wiring harness. If it is damaged, the entire wiring harness must be replaced.

The sender controls the installation pressure of the transmission in accordance with the ATF temperature. This keeps shifting operations very comfortable across the entire temperature range.

If the ATF temperature is too high, the control module selects a map with the least power loss possible and closes the torque converter clutch. In addition, downshifting takes place at higher engine speed values. This reduces converter slip, and the ATF can cool down.

The sender is regarded as defective if the signal voltage exceeds or falls below the prescribed signal voltage range. Shifting then takes place with a substitute value of 80 °C.

## 8. Sender for transmission input speed

**Installation position** On the hydraulic control unit in the transmission.

The sender (inductive pickup) transfers the transmission input speed to the transmission control module.

## 9. Sender for transmission speed

**Installation position** Beside the hydraulic control unit in the transmission.

The sender (inductive pickup) transfers the transmission speed (output speed) to the transmission control module.

## 10. ABS control module

**Installation position** In the front luggage compartment

The ABS control module is connected with the Tiptronic control module. It transfers the front wheel speeds, which are required for slip monitoring and for calculation of the transverse acceleration.

Furthermore, on vehicles with traction control (TC) the Tiptronic control module is signalled whether TC is active. The Tiptronic control module goes to a special map when this information is received.

## 11. Stop light switch

**Installation position** In front of the brake pedal.

The transmission control module requires the stop light switch signal in order to initiate downshifting before curves and for activation of the shiftlock lift solenoid.

## 12. Kick-down switch

**Installation position:** In the accelerator pedal box in front of the accelerator.

### Note

As the accelerator pedal box must not be opened, the complete accelerator pedal box must be replaced if the kick-down switch is defective.

The kick-down switch detects when the accelerator pedal is floored past the full-throttle position. It connects ground to the Tiptronic control module, which shifts the shifting times for faster acceleration. The transmission shifts down immediately depending on the engine speed, and shifts

up again only when the highest permissible engine speed is reached.

Kick-down is not performed if the switch is defective.

### **13. Selector lever with manual switch**

The selector lever transmits the selector lever positions to the transmission and the multi-function switch via a cable.

In the manual gate, the manual switch connects ground to the Tiptronic control module, which enables manual tip shifting.

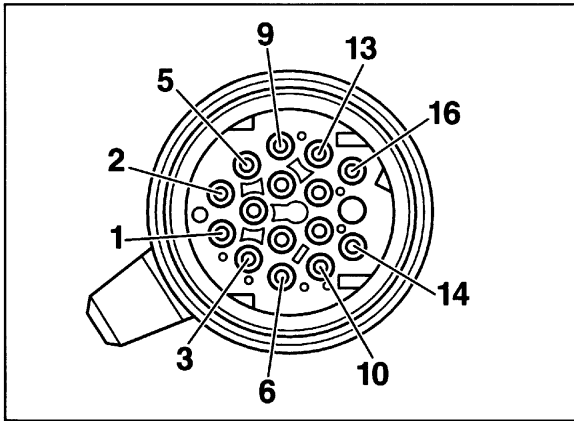
### **14. Instrument cluster**

The respective selector lever position and the engaged gear are displayed in the instrument cluster.

In the "Reduced driving program", the position display flashes alternately with the 4th gear.

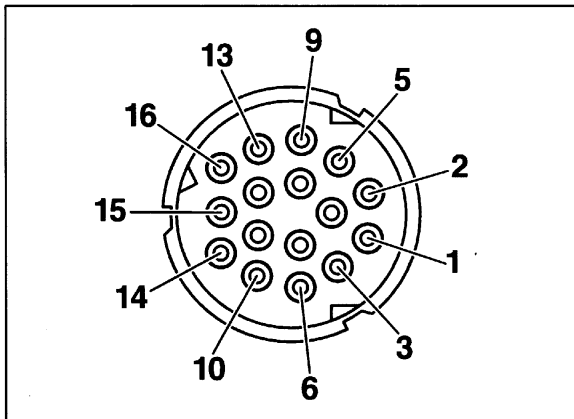
# Connector diagrams and ground points

## Transmission plug



561 - 96

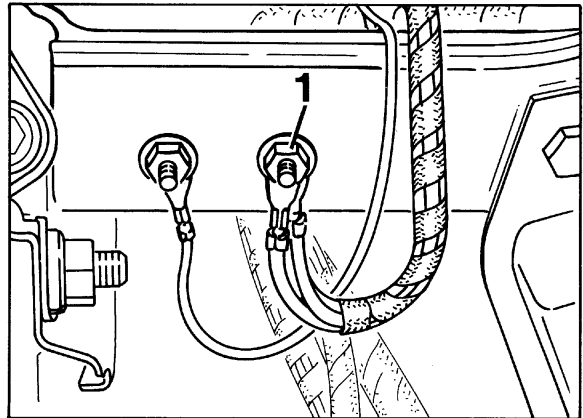
## Transmission socket



562 - 96

## Ground point 4

Ground point 4 is located in front of the instrument cluster on the dashboard support frame.

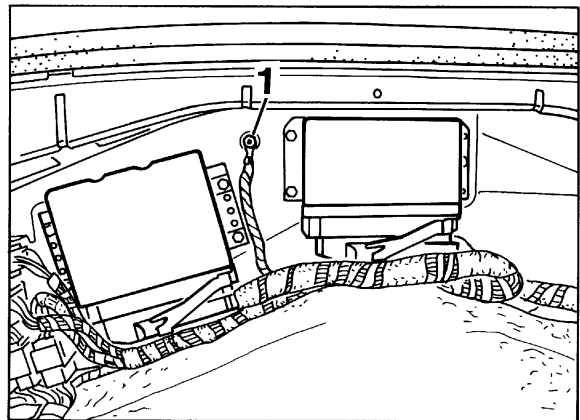


1 = Ground point 4

599 - 96

## Ground point 9

Ground point 9 is located on the rear wall in the rear luggage compartment, between the DME control module and Tiptronic control module.



1 = Ground point 9

576 - 96

# Tiptronic connector assignment

- |                                   |                                    |
|-----------------------------------|------------------------------------|
| 1 - Pressure regulator 2          | 22- ATF temperature                |
| 2- Shiftlock solenoid             | 23- Shield, turbine speed          |
| 3- Free                           | 24- Free                           |
| 4- Pressure regulator 4           | 25- Display, manual mode           |
| 5- Pressure regulator 1           | 26- Terminal 30                    |
| 6- Power ground                   | 27- Cruise control                 |
| 7- Free                           | 28- Electronics ground             |
| 8 - Multi-function switch, line 2 | 29- Pressure regulator 3           |
| 9- Multi-function switch, line 4  | 30- Solenoid valve 1               |
| 10- Brake light                   | 31 - Free                          |
| 11 - Free                         | 32- Solenoid valve 3               |
| 12- Pin code 1                    | 33- Solenoid valve 2               |
| 13- Manual program switch         | 34- Power ground                   |
| 14- Output shaft speed (-)        | 35- Free                           |
| 15- Shield, output shaft speed    | 36 - Multi-function switch, line 1 |
| 16- Turbine speed ( + )           | 37 - Multi-function switch, line 3 |
| 17- Free                          | 38-Front-wheel speed, left         |
| 18- Kick-down                     | 39-Front-wheel speed, right        |
| 19- TC active                     | 40- Free                           |
| 20- Free                          | 41 - Free                          |
| 21 - Sensor ground                | 42- Output shaft speed ( + )       |

43 - Free

44 - Ground, turbine speed

45 - Free

46 - Upshift

47 - Downshift

48 - Pin code 2

49 - Free

50 - Free

51 - Coolant shutoff valve

52 - Plus - pressure regulator, solenoid valves

53 - Plus - pressure regulator, solenoid valves,  
shiftlock

54 - Terminal 15

55 - Terminal 15

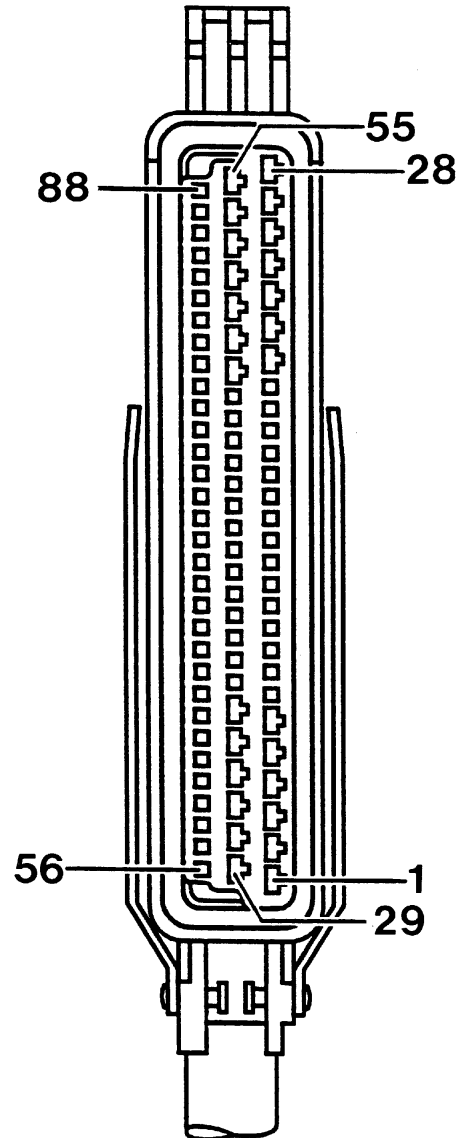
56 ... 84 - Free

85 - CAN - low

86 - CAN - high

87 - Free

88 - K-line





# Fault overview

Test point	DTC		Fault text	Page
	Porsche	OBD II		
1	43	P1746	Control module faulty (relay)	37- D 21
2	44	P0602	Control module faulty (watchdog)	37- D 21
3	49	P0603	Control module faulty (EEPROM)	37- D 22
4	42	P0605	Control module faulty (checksum)	37- D 22
	31	P0753	Solenoid valve 1	37 - D22
	32	P0758	Solenoid valve 2	
	33	P0743	Solenoid valve 3	
	63	P1762	Shiftlock P/N lock	37- D 23
	80	P1813	Pressure regulator 1	37- D 24
	81	P1818	Pressure regulator 2	
	82	P1823	Pressure regulator 3	
	83	P1828	Pressure regulator 4	
8	55	P1710	Speed signal	37- D 25
	62	P1715	front right/front left	
9	93	P1656	Coolant shutoff valve	37- D 26
10	35	P0706	Multi-function switch	37- D 26
11	21	P0727	Rpm signal from DME control module	37- D 28
12	46	P0725	Governor	37- D 29
13	36	P0722	Speed sensor	37- D 29

Test point	DTC		Fault text	Page
	Porsche	OBD II		
14	90	P0722	Gear sel. monitor, output drive	37- D 30
15	91	P0717	Stall speed, transmission input	37- D 31
16	92	P0717	Gear sel. monitor, transmission input speed	37 - D 33
17	72 73 74 75	P0732 P0733 P0734 P0735	Gear sel. monitor, 2nd, 3rd, 4th and 5th gear	37 - D 34
18	22	P1770	Load signal from DME control module	37 - D 35
19	23	P1765	Throttle information fault	37 - D 35
20	53	P1704	Kick-down switch	37- D 36
21	56	P1790	Instrument cluster activation	37- D 36
22	11	P1750	Voltage to control module	37 - D 38
23	12	P1602	Terminal 30, open circuit	37 - D 38
24	51	P1744	Manual program switch	37- D 39
25	37	P0710	Transmission temperature sensor	37- D 39
26	70	P0740	Solenoid valve, torque converter clutch	37- D41
27	100	P0600	CAN timeout	37 - D 42
28	101	P0600	CAN bus fault	37- D 42

3. Check wiring from the control module connector pins 30, 32 and 33 to the 16-pole transmission connector pins 8, 4 and 9 for continuity, short to ground and short to B+.
4. Check SV. To do this, remove the ATF pan, disconnect plug connection on the SV and measure the resistance.

Nominal value: 24 ... 36  $\Omega$

**Test point 6**

Shiftlock P/N lock  
Open circuit/short to ground,  
short to B+  
**DTC 63**

Fault effect:

Fault is only entered in the fault memory.

**Note**

When the ignition is on, a transmission range can be selected from the selector lever position P or N only if the foot brake is pressed in addition.

1. Check lifting solenoid with wiring. To do this, connect an ohmmeter to control module connector pins 2 and 53 and measure the resistance.

Nominal value: 60 ... 90  $\Omega$

2. Check wire from control module connector pin 2 to the lifting solenoid connector pin 5 for continuity, short to ground and short to B+.

**Note**

The lifting solenoid connector is accessible only if the centre console is removed.

**Test point 7**

Pressure regulators

1, 2, 3, 4

Open circuit/short to ground,  
short to B+**DTCs 80, 81, 82, 83**

Fault effect:

Reduced driving program.

If there is a short to B+ on pressure regulator 4, the torque converter clutch will always stay open.

**Note**

The pressure regulators (DRs) are pressure-control solenoid valves. They convert an electrical current to a proportional hydraulic pressure.

1. Check pressure regulator with wiring. To do this, connect an ohmmeter to the control module connector and measure the resistance:

DR1 = Pin 52 and pin 5

DR2 = Pin 52 and pin 1

DR3 = Pin 52 and pin 29

DR4 = Pin 52 and pin 4

Nominal value: 5 ... 10  $\Omega$ 

2. Check wiring from the control module connector pins 1, 4, 5 and 29 to the 16-pole transmission connector pins 3, 11, 2 and 7 for continuity, short to ground and short to B+.
3. Check the pressure regulator. To do this, remove the ATF pan, pull off plug connection on the pressure regulator and measure the resistance.

Nominal value: 5 ... 10  $\Omega$ **Note**

The hydraulic control unit must be removed before the DR4 (modulation pressure) can be tested.

**Test point 8**

Speed signal  
front right/left  
Signal implausible  
**DTCs 55, 62**

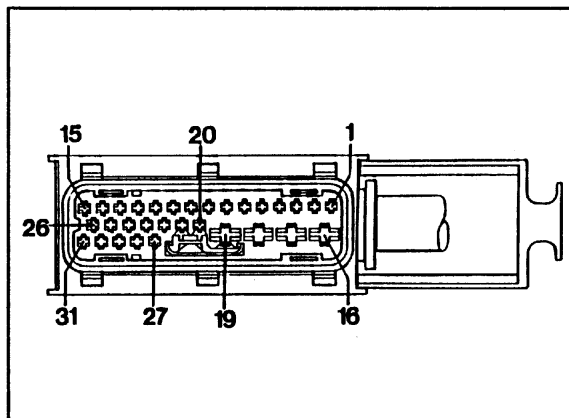
Fault effect:

No manual program.  
Upshifting is not prevented during braking.  
No downshifting during braking.  
Substitute value for transverse acceleration.

**Note**

The wheel speeds can be checked with Porsche System Tester 2 (Actual values/Speed signal (FR)/(FL)).  
To do this, raise the vehicle and spin the right or left front wheel by hand.

1. Check wheel speed with the Tester.
2. Read out fault memory of the ABS/TC control module and remedy the fault according to the ABS test plan.
3. Check wiring from the Tiptronic control module connector pin 38 (or 39) to the ABS/TC control module connector pin 25 (or 26) for open circuit, short to ground and short to B+.



*ABS/TC control module connector*

**Note**

As the Tester display appears after a delay due to the functional principle of the unit, do not shift through the positions too quickly.

**2. Check MFS with wiring.**

To do this, pull off the Tiptronic control module connector and test the MFS for continuity according to the Table.

	Pin 8	Pin 9	Pin 36	Pin 37
P	-	-	0	-
R	0	-	-	-
N	0	-	0	0
D	-	0	0	0

ohmmeter display:

- = Open circuit

0 = Continuity

**3. Check MFS without wiring.**

To do this, disconnect the MFS connector and test the MFS for continuity according to the Table.

	Pin E - A	Pin E - B	Pin E - C	Pin E - D
P	0	-	-	-
R	-	0	-	-
N	0	0	0	-
D	0	-	0	0

ohmmeter display:

- = Open circuit

0 = Continuity

**Test point 9**

Coolant shutoff valve  
Open circuit/short to ground,  
short to B+

**DTC 93**

Fault effect:

The reduced driving program is activated if there is an open circuit/short to ground.

The fault is only entered in the fault memory in the event of a short circuit to plus.

**Note**

The function of the coolant shutoff valve can be tested with the Porsche System Tester 2 (Drive links/Coolant shutoff valve).

1. Test valve with the Tester.
2. Check internal resistance of the valve. To do this, pull off plug connection on the valve and connect ohmmeter to pin 1 and pin 2.

Nominal value: 25 ... 35  $\Omega$

3. Check wire from the Tiptronic control module connector pin 51 to the coolant shutoff valve connector pin 1 for open circuit, short to ground and short to B+.

**Test point 10**

Multi-function switch  
Signal implausible

**DTC 35**

Fault effect:

Reduced driving program.

**Note**

The multi-function switch (MFS) can be tested with the Porsche System Tester 2 (Input signals/Multi-function switch).

1. Test the MFS with the Tester. To do this, shift through all selector lever positions in steps and check whether the position display in the instrument cluster and the display on the Tester agree.

4. Check wiring from the Tiptronic control module connector pin 8, 9, 36 or 37 to the MFS connector pin B, D, A or C for continuity, short to ground and short to B+.
5. Check the selector lever cable adjustment (refer to Volume 3, Page 34 - A 9).

**Test point 11**

Speed signal  
DME control module  
Signal implausible

**DTC 21**

Fault effect:

Reduced driving program.

**Notes**

- The DME control module signals a fault directly to the Tiptronic control module via a data line (CAN bus).
  - The rpm signal can be checked with the Porsche System Tester 2 (Actual values/Rpm).
1. Check rpm signal with the Tester.
  2. Read out fault memory of the DME control module and remedy the fault according to the DME test plan.
  3. Check wiring from the Tiptronic control module connector pin 86 (or 85) to the DME control module connector pin 86 (or 85) for open circuit, short to ground and short to B+.



**Test point 12**

Governor  
Signal implausible  
**DTC 46**

Fault effect:  
Reduced driving program.

**Note**

The "Governor" function is activated to prevent overrevving of the engine in the event of false rpm signals.

Possible faults:

Wrong transmission speed signals.  
Stuck spool valves in the transmission.

**Test point 13**

Speed sensor  
Signal implausible  
**DTC 36**

Fault effect:  
Reduced driving program.

**Note**

The ratio of transmission output speed/engine speed is monitored.

1. Check sender for transmission speed on Tiptronic control module connector pin 14 and pin 42 with an ohmmeter.

Nominal value: 0.80 ... 1.2 k $\Omega$

2. Check wiring from the control module connector pin 42 (or 14) to the 16-pole transmission connector pin 10 (or 1) for open circuit, short circuit to ground and short to B+.
3. Check shield on control module connector pin 15.

**Fault, DTC****Possible causes, elimination, notes**

---

4. Check sender on transmission socket pin 10 and pin 1 with an ohmmeter.

Nominal value: 0.80 ... 1.2 k $\Omega$

**Note**

The ATF pan must be removed before the sender can be replaced.

5. If items 1 ... 4 are OK and no other faults are stored, there is a mechanical/hydraulic fault in the transmission (e.g. ATF level not OK, defective converter, slipping clutches or brakes).

**Test point 14**

Gear sel. monitor,  
output drive

Signal implausible

**DTC 90**

Fault effect:

Reduced driving program.

The ratio of transmission input speed/transmission output speed is monitored.

1. Test sender for the transmission speed on Tiptronic control module connector pin 14 and pin 42 with an ohmmeter.

Nominal value: 0.80 ... 1.2 k $\Omega$

2. Check wiring from control module pin 42 (or 14) to the 16-pole transmission connector pin 10 (or 1) for open circuit, short to ground and short to B+.

3. Check shield on control module connector pin 15.

4. Test sender on transmission socket pin 10 and pin 1 with an ohmmeter.

Nominal value: 0.80 ... 1.2 k $\Omega$

**Note**

The ATF pan must be removed before the sender can be replaced.

5. If items 1 ... 4 are OK and no other faults are stored, there is a mechanical/hydraulic fault in the transmission (e.g. ATF level not OK, slipping clutches or brakes).

**Test point 15**

Stall speed,  
transmission input  
Signal implausible

**DTC 91**

Fault effect:

Reduced driving program.

**Note**

The ratio of transmission input speed/engine speed is monitored.

1. Test sender for the transmission input speed on Tiptronic control module connector pin 16 and pin 44 with an ohmmeter.

Nominal value: 230 ... 300  $\Omega$

2. Check wiring from control module pin 16 (or 44) to the 16-pole transmission connector pin 5 (or 6) for open circuit, short to ground and short to B+.

## Fault DTC

### Possible causes, elimination, notes

3. Check shield on control module connector pin 23.
4. Check sender on transmission socket pin 5 and pin 6 with an ohmmeter.

Nominal value: 230 ... 300 ~

#### Note

The hydraulic control unit must be removed before the sender can be replaced.

5. If items 1 ... 4 are OK and no other faults are stored, there is a mechanical/hydraulic fault in the transmission (e.g. ATF level not OK, defective converter slipping clutches or brakes.)

**Fault, DTC****Possible causes, elimination, notes**

---

3. Check shield on control module connector pin 23.
4. Check sender on transmission socket pin 5 and pin 6 with an ohmmeter.

Nominal value: 230 ... 300  $\Omega$

**Note**

The hydraulic control unit must be removed before the sender can be replaced.

5. If items 1 ... 4 are OK and no other faults are stored, there is a mechanical/hydraulic fault in the transmission (e.g. ATF level not OK, defective converter, slipping clutches or brakes.)

**Test point 16**

Gear sel. monitor,  
transmission input speed  
Signal implausible

**DTC 92**

Fault effect:

Reduced driving program.

**Note**

The ratio of transmission input speed/transmission output speed is monitored.

1. Test sender for transmission input speed on Tiptronic control module connector pin 16 and pin 44 with an ohmmeter.

Display: 230 ... 300  $\Omega$

2. Check wiring from control module pin 16 (or 44) to the 16-pole transmission connector pin 5 (or 6) for open circuit, short to ground and short to B+.

3. Check shield on control module connector pin 23.

4. Test sender on transmission socket pin 5 and pin 6 with an ohmmeter.

Display: 230 ... 300  $\Omega$

**Note**

The hydraulic control unit must be removed before the sender can be replaced.

5. If items 1 ... 4 are OK and no other faults are stored, there is a mechanical/hydraulic fault in the transmission (e.g. ATF level not OK, slipping clutches or brakes).

**Test point 17**

Gear sel. monitor,  
2nd, 3rd, 4th, and 5th gear  
Signal implausible

**DTCs 72, 73, 74, 75**

Fault effect:

Reduced driving program.

**Note**

The gear selection monitor for 2nd to 5th gears monitors the ratio of engine speed/output drive speed. In the case of deviations from nominal values, the Tiptronic control module detects whether shifting was performed mechanically or hydraulically.

If no other faults are stored, there is a mechanical/hydraulic fault in the transmission.

The following procedure can be used to check whether the transmission actually shifted to the correct gear in each case:

- ATF temperature between 40 °C and 95 °C.
- Hold gears 2 ... 5 in the manual gate.
- Drive at a constant vehicle speed on level ground (not on the roller test stand) and read off the engine speed.

The following values must be achieved during this test:

	Speed		Engine rpm
	Speedom. indication	Tester display	Nmin ... Nmax
2nd gear	50 km/h	45 km/h	3300 ... 3700
3rd gear	60 km/h	55 km/h	2800 ... 3200
4th gear	70 km/h	65 km/h	2300 ... 2700
5th gear	80 km/h	74 km/h	1900 ... 2200

## Fault DTC

## Possible causes, elimination, notes

### 18

Load signal from  
DME control module  
**DTC 22**

Fault effect:

Fixed map.

#### Note

The DME control module signals a fault directly to the Tiptronic control module via a data lead (CAN bus).

1. Read out the fault memory of the DME control module and remedy the fault according to the DME test plan.
2. Check wiring from Tiptronic control module connector pin 85 (or 86) to the DME control module connector pin 85 (or 86) for open circuit, short to ground and short to B+.

### 19

Throttle information fault  
**DTC 23**

Fault effect:

Throttle plate substitute value (approx. 15 %).

Fixed shift map.

No manual program.

#### Notes

The DME control module signals a fault directly to the Tiptronic control module via a data lead (CAN bus).

The throttle plate angle can be tested with the Porsche System Tester 2 (Actual values/Throttle plate angle).

1. Read out the fault memory of the DME control module and remedy the fault according to the DME test plan.
2. Check wiring from Tiptronic control module connector pin 85 (or 86) to DME control module connector pin 85 (or 86) for open circuit, short to ground and short to B+.

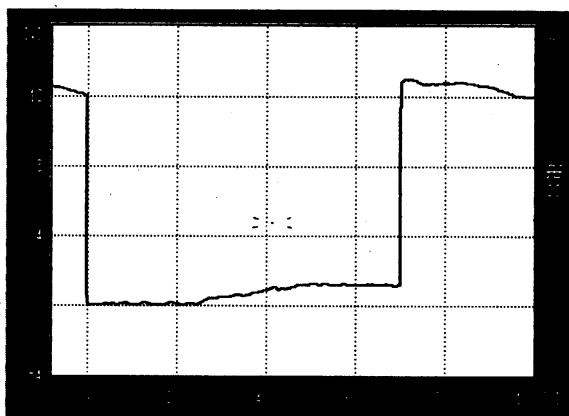


Signal coding:

Actual gear	1	2	3	4	5
Pulse width in "D"	10 %	20 %	30 %	40 %	50 %
in "M"	15 %	25 %	35 %	45 %	55 %

**Note**

There is no fault if the pulse width is 70 % with the engine running and with the selector lever in position "P".



592 - 96

1. Test the PWM signal with an oscilloscope.
2. Check wire from Tiptronic control module connector pin 25 to the instrument cluster connector II (white) pin 17 for open circuit, short to ground and short to B+.

**Test point 20**

Kick-down switch  
Short to ground  
**DTC 53**

Fault effect:

No kick-down.

**Note**

The function of the kick-down switch can be tested with the Porsche System Tester 2 (Input signals/Kick-down).

1. Test function of the switch with the Tester.

**Note**

As the accelerator pedal box must not be opened, the complete box must be replaced if the kick-down switch is defective.

2. Check wire from control module connector pin 18 to the kick-down switch for short to ground.

Nominal value:

Accelerator pedal in idle position (kick-down switch open) =  $\infty \Omega$

Accelerator pedal to the stop (kick-down) = **0 ... 5  $\Omega$**

**Test point 21**

Instrument cluster  
activation  
No signal change  
**DTC 56**

Fault effect:

Reduced driving program.

**Note**

The Tiptronic control module (pin 25) is connected with instrument cluster (pin II/17) via a serial data lead.

Specification:

Signal type = PWM

Frequency = 50 Hz

Level = 0 ... 12 V

**Test point 22**

Voltage to control module  
Open circuit/  
short to ground

**DTC 11**

Fault effect:

Reduced driving program.

**Note**

One side of the solenoid valve (SV) coils is supplied directly with positive voltage, and the other side is connected to ground via a driver.

1. Check supply leads of the solenoid valves (pins 52 and 53) for open circuit and short to ground.
2. If the test described in 1 is not OK, check wiring from control module connector pin 52 (or 53) to the 16-pole transmission connector pin 12 (or 16) for open circuit and short to ground.
3. Check the transmission wiring harness at transmission socket pin 16 and pin 12 for open circuit and short to ground.

**Test point 23**

Terminal 30, open circuit  
Open circuit/short  
circuit to ground

**DTC 12**

Fault effect:

Fault is only entered in the fault memory.

**Note**

The Tiptronic control module is continuously supplied with battery voltage via pin 26 (+ 30).

1. Test voltage at control module connector pin 26.  
If no battery positive voltage is displayed, check fuses B1 and F6 and check wire from the battery to the control module.

**Test point 24**

Manual program switch  
Short to ground  
**DTC 51**

Fault effect:

No manual program.

**Note**

The manual program switch can be tested with the Porsche System Tester 2 (Input signals/Manual program switch).

1. Test switch with the Tester.
2. Check whether ground is connected to control module connector pin 13.

Nominal value:

In the automatic gate =  $\infty \Omega$

In the manual gate = **0 ... 5  $\Omega$**

If display is OK = Control module faulty.

3. Check wire from control module connector pin 13 to the manual switch for short to ground.

**Test point 25**

Transmission temperature sensor  
Open circuit/short to plus  
**DTC 37**

Fault effect:

Reduced driving program.

Substitute value of 80 °C for ATF temperature.

No activation of the coolant switchover valve (transmission always cooled).

**Notes**

- The ATF temperature can be tested with the Porsche System Tester 2 (Actual values/Transmission temp.).
- A fault is stored if an ATF temperature outside the limit range below – 50 °C or above + 180 °C is detected.

1. Check ATF level (refer to Page 37 - A 12).
2. Check sender for ATF temperature with wiring To do this, connect an ohmmeter to control module connector pins 21 and 22.

Nominal value:

At 20 °C = approx. 1.00 k $\Omega$

At 40 °C = approx. 1.15 k $\Omega$

At 60 °C = approx. 1.30 k $\Omega$

3. Check wiring from control module connector pin 21 (or 22) to the 16-pole transmission connector pin 14 (or 13) for continuity, short circuit to ground and short to B+.
4. Test sender for ATF temperature with transmission wiring harness. To do this, connect an ohmmeter to transmission socket pin 13 and pin 14.

Nominal value:

At 20 °C = approx. 1.00 k $\Omega$

At 40 °C = approx. 1.15 k $\Omega$

At 60 °C = approx. 1.30 k $\Omega$

If the nominal value is not OK = the transmission wiring harness or sender for the ATF temperature is defective.

**Note**

As the sender for the ATF temperature is integrated in the transmission wiring harness, the transmission wiring harness must be replaced if the sender is damaged.

## Fault, DTC

## Possible causes, elimination notes

### Test point 26

Solenoid valve, torque  
converter clutch  
Open circuit/short  
to ground  
**DTC 70**

Fault effect:

Torque converter clutch always open.

1. **Check ATF level (refer to Page 37- A 12) and erase the fault memory.**
2. Perform a test drive and read out the fault memory.

### Note

Diagnosis conditions for fault detection:

- Torque converter clutch activated

No engine speed fault, spider shaft speed fault, transmission ratio fault or pressure regulator 4 fault entered as present.

- Gear or 4 or 5.
- No shifting operation taking place.

3. If the fault recurs after the test drive and no other faults are stored, the following fault possibilities can be present:

Electrical activation of pressure regulator 4 not OK (diagnostic trouble codes 83 and 55 present).

Mechanical defect in pressure regulator 4.

- ATF supply to the torque converter clutch not OK.
- Converter defective

## Fault, DTC

## Possible causes, elimination, notes

### Test point 27

CAN timeout

DTC 100

Fault effect:

Reduced driving program.

#### Notes

The Tiptronic control module is connected with the DME control module via a data lead (CAN bus).

Never pull off or push on the control module connector with the ignition switched on.

If the DME control module connector, for example, is pulled off with the ignition switched on, the on-board diagnostic system may detect a "CAN timeout" fault under certain circumstances.

1. Read out the DME fault memory. If the fault "CAN timeout" is stored here as well, check the wiring from the Tiptronic control module to the DME control module.
2. Check wiring from Tiptronic control module pin 85 (or 86) to the DME control module pin 85 (or 86) for continuity, short to ground and short to B+.

#### Note

If the wiring is OK and the fault is stored in one control module only, the fault can lie in another control module.

### Test point 28

CAN bus fault

DTC 101

Fault effect:

Reduced driving program.

#### Note

The Tiptronic control module is connected with the DME control module via a data lead (CAN bus).

## Fault, DTC

## Possible causes, elimination, notes

Never pull off or push on the control module connector with the ignition switched on.

If the DME control module connector is pulled off with the ignition switched on, for example, the on-board diagnostic system can detect a "CAN : bus or DPRAM" fault under certain circumstances.

1. Read out the DME fault memory. If the fault "CAN : bus or DPRAM fault" is stored, check the wiring from the Tiptronic control module to the DME control module
2. Check the wiring from Tiptronic control module pin 85 (or 86) to DME control module pin 85 (or 86) for continuity, short to ground and short to B+.

### Note

If the wiring is OK and fault is stored in one control module only, the fault can lie in another control module.

## Test point 29

Version coding  
Signal implausible  
**DTC 61**

Fault effect:

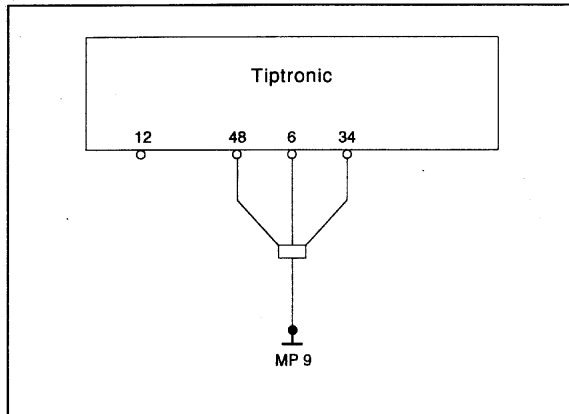
Reduced driving program.

### Note

As transmission damage can result if the control modules are co.Used, there is a code in the vehicle wiring harness that must agree with the code programmed in the Tiptronic control module.

Pin code 2	ground	open circ.	ground	open circ.
Pin code 1	open circ.	ground	ground	open circ.
Reaction	Function	Reduced driving programme		





591 - 96

- 6 = Power ground
- 34 = Power ground
- 48 = Pin code 2
- 12 = Pin code 1

1. Use the Porsche System Tester 2 (Control modules/Identification) to check whether the prescribed control module is installed. (Refer to the Spare Parts Catalogue for details of the allocation.)
2. Check whether ground is connected to control module connector pin 48. If this is the case, the control module is faulty.
3. Check wire from control module connector pin 48 to ground point 9 for open circuit.

**Note**

Ground point 9 (MP 9) is located in the rear luggage compartment between the DME control module and Tiptronic control module.